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July 26, 2005

Mr. Jim Tischler
California Regional Water Quality Control Board
North Coast Region
5550 Skyline Boulevard, Suite A
Santa Rosa, California 95403

RE: **Work Plan for Soil Vapor Extraction/Ozone Sparge System Installation**
76 Service Station No. 11249
1300 Farmers Lane
Santa Rosa, California
SECOR Project No.: 77CP.60249.05.0003

Dear Mr. Tischler:

On behalf of ConocoPhillips, SECOR International Incorporated (SECOR) presents a work plan for conducting periodic soil vapor extraction (SVE) and installing an ozone sparging (OS) system at the site referenced above. SVE and OS are remedial strategies that were recommended by SECOR in the May 18, 2005 *Pilot Dual Phase Extraction Summary Report*, which was approved by the Regional Water Quality Control Board – North Coast Region (RWQCB-NCR) in correspondence dated June 10, 2005. Periodic SVE and the operation of an OS system will address petroleum hydrocarbons and fuel oxygenates, specifically methyl tertiary butyl ether (MtBE) and tertiary butyl alcohol (TBA), in soil and groundwater beneath the site, and prevent further migration of dissolved impacts off-site. A summary of the site background, previous assessment and remedial action, a conceptual design of the proposed SVE/OS system, a work plan for the installation of SVE and OS wells, and a schedule for implementing this remedial action plan (RAP) are presented below.

SITE BACKGROUND

The site is an operating 76-branded gasoline service station located on the northeast corner of the intersection of Farmers Lane and Valley Street in Santa Rosa, California. Site features include a convenience store, two service bays, two dispenser islands, and underground storage tanks (USTs). Properties located in the vicinity of the site consist of residential and commercial developments. Matanzas Creek is located adjacent to the site to the north.

The site was previously occupied by a Mobil Oil service station until 1992, at which time BP acquired the property and assumed service station operations and management of ongoing environmental work. Tosco Marketing Company (Tosco) acquired the property on July 22, 1994. Tosco discontinued the distribution of gasoline fuel products containing methyl tertiary butyl ether (MtBE) at the site on April 18, 1998 (Environmental Resolutions Inc. [ERI], *Soil and Groundwater Investigation Report*, May 25, 2000).

PREVIOUS INVESTIGATIONS AND REMEDIAL ACTION

An unauthorized release filed by Mobil Oil on September 2, 1987 indicated the occurrence of a release of unknown quantity due to the failure of product piping associated with the 10,000-gallon gasoline UST and the 280-gallon waste oil UST (EMCON, *Baseline Assessment*, December 27, 1994).

In August 1988, Kaprelean Engineering, Inc. (KEI) observed the excavation and removal of one steel 280-gallon waste oil UST. One soil sample collected at the base of the UST excavation (10 feet below ground surface [bgs]) contained petroleum hydrocarbons as oil and grease and trichloroethane (KEI, *Soil Sampling Investigation*, August 23, 1988). Stockpiled soil contained 110 parts per million (ppm) total petroleum hydrocarbons and diesel (TPHd) and 3,800 ppm total recoverable petroleum hydrocarbons (TRPH, KEI, *Stockpiled Soil Sampling*, September 8, 1988). The removed waste oil UST was replaced with a new 1,000-gallon double walled fiberglass waste oil UST installed in 1988 (EMCON, *Baseline Assessment Report*, December 27, 1994).

In October 1991, EMCON supervised the drilling and installation of one groundwater monitoring well (MW-1) in the vicinity of the former waste oil UST. With the exception of detections of specific metals and 1,2-dichloroethane (1,2-DCA) in groundwater, petroleum hydrocarbons were not detected in soil and groundwater (EMCON, November 19, 1991).

During November 1992, Alisto Engineering Group (Alisto) supervised the installation of three groundwater monitoring wells (MW-2 through MW-4) at the site. The boreholes were advanced to approximately 28 feet bgs. Analysis of soil samples indicated the presence of total petroleum hydrocarbons as gasoline (TPHg) at 140 ppm, and ethylbenzene at 0.46 ppm. TPHg and benzene were detected in groundwater up to 89 parts per billion (ppb) and 1.4 ppb, respectively (Alisto, *Preliminary Site Assessment Report*, January 27, 1993).

In January 1999, ERI supervised the removal of one 1,000-gallon used oil UST, which was observed to be intact with no visible holes or cracks. Soil samples collected from beneath the UST contained TPHd, TPHg, and ethylbenzene up to concentrations of 312 ppm, 2.3 ppm, and 0.011 ppm, respectively. This used oil UST was not utilized by Tosco between July 1994, and the time of its removal (ERI, *Environmental Work Associated With Used-Oil Underground Storage Tank Removal,* April 20, 1999). Tosco was subsequently named as a responsible party for the ongoing investigation and mitigation of impacts beneath the site (Regional Water Quality Control Board - North Coast Region [RWQCB-NCR], October 4, 1999).

In November and December 1999, ERI oversaw the removal and replacement of product lines and dispensers, and collected soil samples from the trenches and beneath the dispensers. Soil samples contained up to 605 ppm TPHg, 0.0204 ppm benzene, and 0.477 ppm MtBE.

In March 2000, ERI supervised the drilling of eight soil borings (B-4 through B-8, and MW-5 through MW-7). Three of the borings were converted to groundwater monitoring wells (MW-5 through MW-7), completed at a depth of 47 feet bgs. Petroleum hydrocarbons and MtBE

were detected in soil and groundwater beneath the site (ERI, *Soil and Groundwater Investigation Report*, May 25, 2000).

In 2000, ERI conducted an agency and door-to-door groundwater receptor survey. According to files obtained from the California Department of Water Resources (DWR), a total of 22 wells were identified within a one-half mile radius of the site. Twenty were identified as domestic wells, and two were found to be irrigation wells. A quarter-mile radius door-to-door survey performed cross-gradient and downgradient of the site indicated the presence of nine water supply wells, including one municipal water supply well owned and maintained by the City of Santa Rosa. Six of these wells were reported as being abandoned or not used; one well was reported as being used for irrigation purposes; and one well was reported as being used for drinking and irrigation purposes. The closest active water supply well to the site was a private domestic well located approximately 1,000 feet northwest of the site. ERI also performed a utility survey, which indicated the presence of several utilities beneath Vallejo Street and Farmers Lane. Results are further summarized in ERI's *Soil and Groundwater Investigation Report* dated May 25, 2000.

In June 2001, ERI supervised the installation of two additional wells (MW-7D and MW-10) and two dual completion monitoring wells (MW8S/D and MW9S/D). Soil samples were not collected during drilling. Post-development groundwater samples contained up to 130 ppb TPHg and 33 ppb MtBE.

In July 2002, one extraction well (EX-1) and one observation well (OB1) were installed at the site. Concentrations of TPHg and MtBE were reported in soil samples up to 64 milligrams per kilogram (mg/kg) and 0.96 mg/kg, respectively.

In October 2002, ERI drilled and sampled two direct push soil borings (GP-1 and GP-2) on the west side of Farmers Lane opposite the site. The borings were respectively advanced to 28 and 32 feet bgs. Petroleum hydrocarbons and MtBE were not detected in soil samples. Grab groundwater samples contained up to 620 ppb TPHg and 4,400 ppb MtBE.

In March 2003, ERI submitted an Interim Remedial Action Plan (IRAP), which proposed the installation of a dual-phase extraction (DPE) and ozone sparging (OS) system to control the off-site migration of contaminants beneath the site (ERI, *Interim Remedial Action Plan*, March 18, 2003). The RWQCB-NCR approved the IRAP as stated in correspondence dated August 15, 2003. The RWQCB-NCR also requested further delineation of dissolved MtBE west of the site.

In September 2004, SECOR submitted a proposal to modify the IRAP, and a work plan for the installation of two off-site wells (MW-11 and MW-12) and performance of a DPE test at the site. SECOR recommended further delineation of off-site impacts and DPE feasibility testing to evaluate whether DPE is an effective remedial strategy for the site (SECOR, *Proposal to Modify Remediation Plan and Work Plan for Additional Off-Site Assessment*, September 3, 2004). The modified IRAP and work plan for additional off-site assessment were approved by the RWQCB-NCR in correspondence dated December 20, 2004.

Between March 8 and 10, 2005, SECOR performed DPE feasibility testing utilizing well EX-1 as the pumping well, and wells MW-2, MW-4, MW-7 and OB-1 as observation wells. The

calculated TPHg, benzene, and MtBE mass removed during the DPE test were approximately 16.0 pounds, 0.02 pounds, and 0.21 pounds, respectively. Of the estimated mass removed, it was estimated that approximately 0.0039 pounds of TPHg, 0.0000057 pounds of benzene, and 0.0015 pounds of MtBE were removed from the extracted groundwater. Approximately 3,840 gallons of groundwater were extracted during the DPE test. Although DPE appeared to be an effective remedial option based on water level drawdown, high SVE and GWE extraction flow rates, and high soil vapor petroleum hydrocarbon removal rates observed during DPE testing, SECOR did not recommend installing a DPE system due to concentrations of tertiary butyl alcohol (TBA) detected at up to 2,000 micrograms per liter (µg/L) in groundwater. Based on the results of DPE feasibility testing, and the recommendations included in ERI's March 2003 IRAP, SECOR recommended that a soil vapor extraction (SVE) and OS system be installed at the site (SECOR, *Pilot Dual Phase Extraction Summary Report,* May 18, 2005).

The site is has been monitored and sampled since the fourth quarter 1992. The highest concentrations of petroleum hydrocarbons, MtBE, and TBA have historically been detected in shallow on-site wells MW-4, MW-6, and MW-7 and shallow off-site well MW-9S, located north-northwest of the site. These wells are situated in the vicinity (MW-4 and MW-7), north (MW-6), and northwest (MW-9S) of the USTs and product dispensers. The direction of groundwater flow beneath the site has predominantly been toward the north and north-northwest.

REMEDIAL ACTION PLAN

To further expedite the removal of contaminants in the vicinity of the USTs and product dispensers, SECOR will perform periodic SVE for the purpose of removing petroleum hydrocarbon mass in vadose zone soil in the areas of wells MW-4 and MW-7. The rationale for this proposal is outlined below.

Review of historical soil data indicates that soil from these borings and nearby boring B-4 contained the highest concentrations of petroleum hydrocarbons and MtBE (B-4 and MW-7 only). Soil beneath the site consists predominantly of mixtures of silt and clay containing lenses of sand and sandy clay to a depth of 30 to 45 feet bgs, underlain by coarse grained materials (sand, gravelly sand, sandy gravel) to a total explored depth of 60 feet bgs. Depth to groundwater beneath the site has historically ranged between 6.5 feet and 17.5 feet bgs.

Based on relatively impermeable soils in the vadose zone (soils from grade to approximately 15 feet bgs), the radius of SVE in the absence of water table depression will be relatively small, as substantial applied vacuum will draw water over the SVE well screens. Therefore, it will likely be more cost-effective to conduct low-flow and/or periodic SVE to remove petroleum hydrocarbons and fuel oxygenates in soil progressively with alternating periods of hiatus, during which enhanced oxygen circulation as a side-effect of SVE should stimulate in-situ intrinsic biodegradation.

In addition, OS will encourage in-situ destruction and/or in-situ biodegradation in the saturated zone, capillary fringe and lower vadose zone. The sparge process will provide for

direct oxidation of these areas via diffusion, and the breakdown of surplus ozone to oxygen will increase subsurface oxygen supplies in support of in-situ aerobic biodegradation.

The OS system will consist of an array of OS wells situated near the site boundary along Farmers Lane and in the northern portion of the site. Remediation by way of OS in this area will directly destroy petroleum hydrocarbons, MtBE, and TBA in groundwater, stimulate in-situ aerobic biodegradation of impacts adsorbed to saturated zone soil and within groundwater, and prevent further off-site migration of dissolved contaminants downgradient (north) of the site. Although concentrations may initially increase due to the desorption of petroleum hydrocarbons from soil caused by the aggressive mechanical scrubbing action of the ozone microbubbles, OS is capable of facilitating subsequent rapid degradation of the dissolved plume beneath the site. The installation of OS points on-site bounding Farmers Lane would act as a barrier, inhibiting migration of dissolved petroleum hydrocarbons, MtBE, and TBA further downgradient of the site.

Conceptual Design

A total of two SVE wells (SVE-1 and SVE-2) are respectively proposed in the areas of greatest petroleum hydrocarbon impact on-site in the areas of well MW-4, boring B-4 and MW-7. The SVE system will be designed to target mass removal in these areas. Based on the limited SVE radius of influence calculated during DPE testing (14 feet), which is reflective of the composition of soil consisting mainly of clay and silt beneath the site, SECOR will evaluate the effectiveness of periodic SVE by monitoring petroleum hydrocarbon mass removal quantities, and will evaluate whether a permanent SVE system is necessary. Based on field results and logistic considerations, remediation system piping for the possible installation of a permanent SVE system may be installed beneath the site at the same time as the OS system piping. If SVE piping is installed, it will likely be routed to a compound area in the southeast portion of the site. Details of the SVE system configuration and proposed recommendations/next actions will be transmitted under separate cover as part of the quarterly status updates or as stand-alone documents following additional SVE events as required by the regulatory agency for the site.

Nine OS points (OS-1 through OS-9) are proposed along the site bounding Farmers Lane, and in the northern portion of the property. Based on the soil stratigraphy, the locations of the wells were selected based on an assumed 20-foot ozone radius of influence, in order to maximize the remedial coverage in these areas.

A map depicting the proposed locations of SVE and OS wells, and the projected radii of influence is presented as Figure 1. A work plan for the installation of the SVE and OS wells is included below.

Process Flow

The ozone injection unit planned for installation will be capable of injecting 0.5 pounds per day of ozone at a continuous injection pressure up to 40 pounds per square inch (psi) at a flow rate of up to 4 standard cubic feet per minute (scfm). Ozone injection tubing (approximately 1/2-inch diameter), doubly-contained within PVC tubing, will connect each OS well to a 9-point manifold, located in a remediation compound located in the southeast

portion of the site. The OS unit will allow the rotation of ozone injection between the 9 OS points at a rate of 4 scfm.

Remediation System Permitting and Installation

Building permits for the installation of the OS system will be obtained from the Sonoma County Permit and Resource Management Department (SCPRMD). If it is determined that a permanent SVE system is needed at the site, a building permit will be obtained through the SCPRMD, and an Authority to Construct Permit and a Permit to Operate will be obtained from the Bay Area Air Quality Management District (BAAQMD). Following approval of this RAP, SVE and OS well construction permits will be obtained from Sonoma County Environmental Health Division (SCEHD). Construction of the remediation system will begin, following the approval of permits and receipt of necessary equipment.

Remediation System Troubleshooting and Startup

Upon installation of the remediation system at the site, SECOR will perform a test run of the system to verify the correct operation of process equipment and controls, and to troubleshoot and repair any component of the system not operating correctly. Once the system is fully operable, official startup will be performed. Data from the startup will be tabulated as necessary to evaluate the remediation system performance. OS and periodic SVE will be performed on a continual basis until these remediation efforts are demonstrated to no longer be technically or economically feasible.

Remediation System Operation and Reporting

SVE System. Influent and effluent soil vapor samples will be collected during the periodic SVE events to determine mass removal. Air samples will be submitted to Severn Trent Laboratories, Inc. (STL) for analysis of GRO, BTEX, and MtBE by Environmental Protection Agency (EPA) Method 8021B. This remediation technique will be evaluated in the quarterly summary reports, which will include the estimated amount of mass extracted, mass extraction rates, system runtime, modifications to system operation, and recommendations and conclusions.

OS System. Operation and maintenance of the OS system will be completed on a monthly basis. As part of the system operation and maintenance, SECOR will check and maintain equipment, and monitor the OS system for fugitive ozone emissions in lateral piping trenches and well boxes. Operational data that will be collected during the monthly site visits will include: system runtime, injection pressure and flow rate to each OS well, and mass of ozone injected. Initially the OS system will be programmed to cycle through the well field at equal intervals. The effectiveness of the OS system will be evaluated based on the results of GRO, BTEX, MtBE, and TBA compiled during future quarterly sampling events, and the monthly collection of dissolved oxygen (DO) and oxidation reduction potential (ORP) readings. Based upon these results, the OS unit can also be reprogrammed to target areas of high dissolved concentrations. Future quarterly summary report submittals will include a synopsis of remediation system performance, and an evaluation of dissolved petroleum hydrocarbon concentrations detected in site groundwater monitoring wells to determine whether OS is affecting the dissolved plume beneath the site.

WORK PLAN FOR THE INSTALLATION OF SVE AND OS WELLS

As discussed above, two SVE wells (SVE-1 and SVE-2) and nine OS wells (OS-1 through OS-9) are proposed for the future SVE and operation of the OS system. A summary of the planned field work is presented below. Field and laboratory procedures for the activities described below are provided in Attachment 1.

- **Health and Safety Plan (HASP).** As required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120), and by the California Occupational Health and Safety Administration (Cal-OSHA) "Hazardous Waste Operations and Emergency Response" guidelines (CCR Title 8, Section 5192), SECOR will update the current site-specific HASP prior to the commencement of fieldwork. The HASP will be reviewed by the field staff and contractors before beginning field operations at the site.

- **Permitting**. Prior to the commencement of field work, SECOR will obtain well construction permits from the SCEHD.

- **Borehole Clearance Activities.** The location of the borings will be marked, and Underground Service Alert (USA) will be notified at least 48 hours prior to drilling. Prior to the initiation of machine drilling, the proposed boring locations will be surveyed by a private utility locator to confirm the location of nearby utilities. The boreholes will hand-augered to a depth of 5 feet bgs to clear the locations of any unforeseen utilities in the area.

- **Soil Sampling and Analysis.** Each borehole will be drilled using hollow stem auger drilling equipment. Soil samples will be collected at 5-foot intervals for logging the stratigraphy beneath the site. Based on photo-ionization detector (PID) readings and field observations, at least two samples (one from the capillary fringe and one from the saturated zone) will be selected for chemical analysis from the boreholes for the SVE wells, which will be completed at a depth of 15 feet bgs. A minimum of three soil samples will be selected for chemical analysis from the boreholes for the OS wells, which will be advanced to the depth of the clay/silt and sand interface, which is anticipated between 30 feet and 45 feet bgs. Soil samples selected for chemical analysis will be sent under chain-of-custody documentation to Severn Trent Laboratories, Inc. (STL) for analysis of GRO, BTEX, fuel oxygenates (MtBE, tertiary amyl methyl ether [TAME], di-isopropyl ether [DIPE], ethyl tertiary butyl ether [EtBE], TBA, and ethanol), 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) by EPA Method 8260B.

- **Installation of Remediation Wells.** Two boreholes will be completed as SVE wells by installing a 4-inch diameter, Schedule 40 polyvinyl chloride (PVC) well casing with approximately 10 feet of 0.020-inch, slotted

screen extending from approximately 5 feet to 15 feet bgs into each borehole. The wells will be completed within the vadose zone and the saturated zone (approximately 9 feet to 15 feet bgs in nearby wells MW-4 through MW-7), for the purpose of using the wells for future alternative remedial technologies such as mobile DPE. Boreholes for the OS wells will be completed with a 0.75-inch diameter, Schedule 80 PVC casing equipped with a 2.5-foot long diffuser tip that will be set at the clay/silt and sand interface, which is anticipated between 30 feet and 45 feet bgs.

- **Well Surveying and EDF Upload.** Following installation, the newly installed remediation wells will be surveyed by a licensed surveyor to a local benchmark relative to mean sea level. Survey data including elevation, longitude, and latitude will be uploaded to the State Water Resources Control Board Geotracker database (www.swrcb.geotracker.ca.gov) in compliance with Assembly Bill 2886 requirements.

- **Soil and Water Disposal.** Soil cuttings and purge/rinsate water generated during well installation activities will temporarily be stored in California Department of Transportation (DOT)-approved, 55-gallon, steel drums on-site pending characterization and disposal. The drums containing soil and rinsate/purge water will be removed by Filter Recycling Services (FRS), and transported to their facility for proper disposal.

- **Report.** Following the completion of well installation activities, SECOR will submit a report documenting the findings of this assessment, and the connection and start-up of the SVE/OS system.

SCHEDULE

Upon approval of this RAP, SECOR is prepared to initiate the coordination of well and remediation system installation activities, with field work anticipated approximately three to four weeks after the SCEHD permit is received.

LIMITATIONS

This work plan has been prepared for the use of ConocoPhillips and its representatives as it pertains to the property located at 1300 Farmers Lane, Santa Rosa, California. Evaluation of the geologic and hydrogeologic conditions at the site for the purposes of this investigation is inherently limited due to the number of observation points. There are no representations, warranties, or guarantees that the points selected for monitoring and sampling are representative of the entire site. Data from this report reflects the conditions at specific locations at a specific point in time. No other interpretation, representations, warranties, guarantees, express or implied, are included or intended in the report findings.

ATTACHMENT 1
FIELD AND LABORATORY PROCEDURES

Work Plan for Soil Vapor Extraction/Ozone Sparge System Installation
76 Service Station No. 11249
1300 Farmers Lane
Santa Rosa, California
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SECOR's STANDARD PROCEDURE FOR HOLLOW STEM AUGER DRILLING

Prior to drilling, boring locations are marked with white paint or other discernible marking and cleared for underground utilities through USA. In addition, the first five feet of each borehole are typically drilled with a hand auger, posthole digger, or air/water knife to evaluate the presence of underground structures or utilities.

Once pre-drilling efforts to identify subsurface structures are complete, pre-cleaned hollow stem augers (typically 8 to 10 inches in diameter) are advanced using a rotary drill rig for the purpose of collecting samples and evaluating subsurface conditions. Upon completion of drilling and sampling the augers are retracted and the borehole is filled with concrete, bentonite grout, hydrated bentonite chips or pellets as required by the regulatory agency. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finish grade.

During the drilling process a physical description of the encountered soil characteristics (i.e. moisture content, consistency, odor, color, etc.), drilling difficulty and soil type as a function of depth are described on boring logs. The soil cuttings are classified in accordance with the Unified Soil Classification System (USCS).

Soil cuttings are temporarily stored on-site in 55-gallon DOT-approved drums pending laboratory analysis, waste profiling and proper disposal. A label is affixed to the drums indicating the contents of the drum, suspected contaminants, date of drilling, borehole number, and depth interval from which the contents were generated.

Related Procedures:

- *Standard Procedure for Soil Sampling—Split Spoon Sampling*
- *Standard Procedure for Equipment Decontamination*

STANDARD PROCEDURE FOR SOIL VAPOR EXTRACTION AND OZONE SPARGE WELL CONSTRUCTION HOLLOW STEM AUGER METHOD

SVE wells are constructed by inserting or tremming well materials through the annulus of the hollow stem auger. In general, the SVE wells are constructed with 15 to 25 feet of screen. The SVE wells will consist of 2 or 4-inch diameter, Schedule 40 PVC casing with 0.01 to 0.02 machine slots, depending on the soil composition beneath the site. The OS wells will consist of 0.75-inch diameter, Schedule 80 PVC casing containing two feet of microbubble screen at the base of each well. The screens in the SVE and OS wells are then filter packed with Lonestar 2/12 or No. 3 sand.

Once each borehole has been drilled to the desired depth, approximately six inches of filter sand are tremmied to the bottom of each boring. The well screen and blank well casing are then inserted through the annulus of the hollow stem augers. The well screen is sand packed by tremming the appropriate filter sand through the annulus between the casing and augers while slowly retracting the augers. During this operation, the depth of the sand pack in the auger is continuously sounded to make sure that the sand remains in the auger annulus during auger retraction to avoid short circuiting the well. The sand pack is tremmied to approximately two feet above the screen, at which time pre-development surging is performed to consolidate the sand pack. Additional sand is added as necessary to assure that the sand pack extends a minimum of two feet above top of screen. Following construction of the sand pack, a two foot thick bentonite seal is tremmied over the sand and hydrated in place. The remainder of the borehole is backfilled with neat cement grout. The well head is then capped with a locking cap and secured with a lock to protect the well from surface water intrusion and vandalism.

The well head is further protected from damage with traffic a rated well box in paved areas or locking steel riser in undeveloped areas. The protective boxes or risers are set in concrete. The details of well construction are recorded on well construction logs.

Wastewater collected during installation is contained in 55-gallon DOT approved drums and stored on site pending laboratory results and disposal. A label is affixed to the drums indicating the contents of the drum, suspected contaminants, date of generation and the monitoring well number from which the waste water was generated.

Related Procedures:

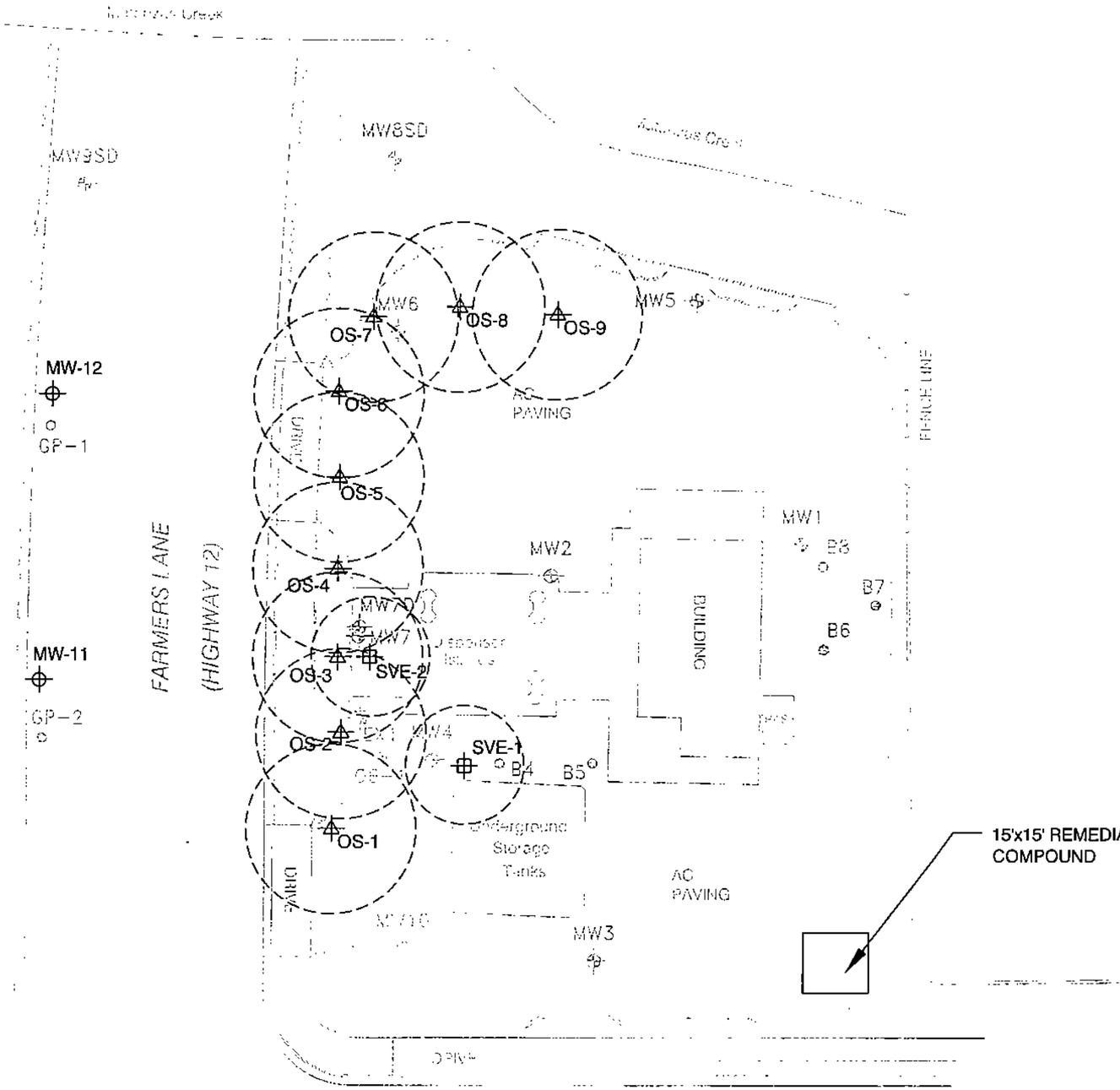
- *Standard Procedure for Hollow Stem Auger Drilling*
- *Standard Procedure for Soil Sampling—Split Spoon Sampling*
- *Standard Procedure for Equipment Decontamination*

STANDARD PROCEDURE FOR EQUIPMENT DECONTAMINATION

Equipment that could potentially contact subsurface media and compromise the integrity of the samples is carefully decontaminated prior to drilling and sampling. Drill augers and other large pieces of equipment are decontaminated using high pressure hot water spray. Samplers, groundwater pumps, liners and other equipment are decontaminated in an Alconox scrub solution and double rinsed in clean tap water rinse followed by a final distilled water rinse.

The rinsate and other wastewater are contained in 55-gallon, DOT-approved drums, labeled (to identify the contents, generation date and project) and stored on-site pending waste profiling and disposal.

FIGURE



LEGEND:

- EXTRACTION WELL
- MW-1 GROUNDWATER MONITORING WELL
- OBSERVATION WELL
- SOIL BORING
- PROPOSED GROUNDWATER MONITORING WELL
- PROPOSED SOIL VAPOR EXTRACTION (SVE) WELL
- PROPOSED OZONE SPARGE (OS) WELL

NOTE: RADII OF INFLUENCE FOR SVE AND OS WELLS ESTIMATED AT 14 FEET AND 20 FEET, RESPECTIVELY.

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FOR:
76 (FORMER BP)
SERVICE STATION #11249

1300 FARMERS LANE
SANTA ROSA, CALIFORNIA

SITE PLAN WITH SVE/OS SYSTEM LAYOUT

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
77CP.60249.01.0002	MDR	MD	MD	7/21/05

Q:\CADD-77\Conoco/Phillips\11249\CP 11249 PROPOSED SVE.dwg, 7/21/2005 10:34:41 AM, mramirez, SACRAMENTO 077

Should you have any questions or concerns regarding these activities, please feel free to contact us at (916) 861-0400.

Sincerely,
SECOR International Incorporated

Kristen Flesoras
Associate Scientist

Rusty Benkosky, P.E.
Principal Engineer

Attachments: Figure 1 – Site Plan with SVE/OS System Layout
Attachment 1 – Field and Laboratory Procedures

cc: Ms. Shelby Lathrop, ConocoPhillips
Mr. Kyle Christie, BP, 6 Centerpoint Drive, First Floor, La Palma, CA 90623-1066
Mr. John Anderson, County of Sonoma, Environmental Health Division, 475 Aviation Boulevard, Suite 220, Santa Rosa, CA 95403
Mr. Mark McKormick, Santa Rosa Fire Department, 955 Sonoma Avenue, Santa Rosa, CA 95404